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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/804,314

03/19/2004

Matthijs H. Keuper

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EXAMINER

DICKEY, THOMAS L

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/804,314	Applicant(s) KEUPER ET AL.	
	Examiner Thomas L. Dickey	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 71-91 is/are pending in the application.
- 4a) Of the above claim(s) 8-17,25-31,35 and 77-91 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,18-22,32-34 and 71-76 is/are rejected.
- 7) ☒ Claim(s) 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/19/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The preliminary amendment filed on 8/18/05 has been entered.

Election/Restriction

2. Applicant's election without traverse of Group II, claims 1-7, 18-24, 32-34 and 71-76 in Paper received 10/28/05 acknowledged.

Oath/Declaration

3. The oath/declaration filed on 6/18/04 is acceptable.

Drawings

4. The formal drawings filed on 3/19/04 are acceptable.

Priority

5. Applicants have made no claim for priority.

Information Disclosure Statement

6. The Information Disclosure Statement filed on 3/19/04 has been considered.

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Specification

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/805424 in view of in view of WEINDORF ET AL. (2002/0140880).

Claims 1-4 discloses a system comprising a first light emitting diode having an epitaxial structure comprising an active region comprising at least one layer of (1,1,-2,0) or (1,0,-1,0) InGaN sandwiched between an n-type region and a p-type region, the active region configured to emit light that is at least 50%, in fact at least 80%, polarized along a first polarization orientation when forward biased. Claims 1-4 do not disclose a polarized microdisplay disposed in a path of light emitted by the active region from the first light-emitting device.

However, Weindorf et al. discloses a backlight LCD with a polarized microdisplay 104 disposed in a path of light emitted by an active region from a first light-emitting device 126. Note figures 1 and 2 and paragraphs 0029-0041 of Weindorf et al. Therefore, it would have been obvious to a person having skill in the art to insert claims 1-4's LED into the polarized microdisplay such as taught by Weindorf et al. in order to use claims 1-4's LED in a useful device. Since Weindorf et al. teaches that backlight

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LCDs are presently being used in hundreds of millions of consumer devices, from telephones to toasters to televisions, that are sold for billions of dollars annually, one would have been motivated to do this because even the slightest commercial advantage that might accrue from this substitution could produce a vast income.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-22, 32,33, and 71-74 are rejected under 35 U.S.C. 102(b) as being anticipated by WEINDORF ET AL. (2002/0140880).

Weindorf et al. discloses a backlight LCD with a first light-emitting diode 126 including an epitaxial structure comprising an active region sandwiched between an n-type region and a p-type region, the active region configured to emit light when forward biased (note that Niwa et al. 2002/0031153 teaches that it is an inherent property of all LEDs to have an epitaxial structure comprising an active region sandwiched between an n-type region and a p-type region, configured to emit light when forward biased) that emits light; a wire grid polarizer non-absorbing polarizer 106 coupled to the first light-emitting diode 126, the non-absorbing polarizer 106 transmitting light having a desired

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polarization orientation and reflecting light that does not have the desired polarization orientation; a randomizing element 118 or 130 coupled to the first light-emitting diode 126 and the non-absorbing polarizer 106, the randomizing element 118 or 130 positioned to receive light emitted from the first light-emitting diode 126 and reflected from the non-absorbing polarizer 106, the randomizing element 118 or 130 at least partially randomizes the polarization state of the light , and a polarized microdisplay 104 disposed in a path of light transmitted by the non-absorbing polarizer 106. With particular regard to claims 20,21,22, and 74 Weindorf et al. discloses that the randomizing element 118 or 130 is either a phosphor wavelength converting material 130 disposed between the non-absorbing polarizer 106 and the active region or a roughened surface 118 that scatters light. Note figures 1 and 2 and paragraphs 0029-0041 of Weindorf et al.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

A. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over NIWA et al. (2002/0031153) in view of WEINDORF ET AL. (2002/0140880).

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Niwa et al. discloses a system comprising a first light emitting diode having an epitaxial structure comprising an active region 6 comprising at least one layer of (1,1, - 2,0) or (1,0, -1,0) InGaN sandwiched between an n-type region 5 and a p-type region 7, the active region 6 configured to emit light that is at least 50%, in fact at least 80%, polarized along a first polarization orientation when forward biased. Note figures 6A-C, 14, 15, and paragraphs 0113-0123 and 0172-0187 of Niwa et al. Niwa et al. does not disclose a polarized microdisplay disposed in a path of light emitted by the active region from the first light emitting device.

However, Weindorf et al. discloses a backlight LCD with a polarized microdisplay 104 disposed in a path of light emitted by an active region from a first light-emitting device 126. Note figures 1 and 2 and paragraphs 0029-0041 of Weindorf et al.

Therefore, it would have been obvious to a person having skill in the art to insert Niwa et al.'s LED into the polarized microdisplay such as taught by Weindorf et al. in order to use Niwa et al.'s LED in a useful device. Since Weindorf et al. teaches that backlight LCDs are presently being used in hundreds of millions of consumer devices, from telephones to toasters to televisions, that are sold for billions of dollars annually, one would have been motivated to do this because even the slightest commercial advantage that might accrue from this substitution could produce a vast income.

B. Claims 34, 75, and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over WEINDORF ET AL. (2002/0140880) in view of WEBER ET AL. (2001/0036083).

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Weindorf et al. discloses a backlight LCD with all the limitations of claims 71 and 32, from which claims 76 and 34 ultimately depend. See above. In addition, Weindorf et al. discloses a second light-emitting diode 126 (note that all of Weindorf et al.'s LEDs are labeled 126 in the figures) including an epitaxial structure comprising an active region sandwiched between a second n-type region and a second p-type region, that emits light when forward biased; a second randomizing element 130 coupled to the second light-emitting diode 126 and the second non-absorbing polarizer 106, the second randomizing element 130 positioned to receive light emitted from the second light-emitting diode 126 and the second non-absorbing polarizer 106, the second randomizing element 130 at least partially randomizes the polarization state of the light; and a light-combining element 110 disposed in the path of the light emitted by the first light-emitting diode 126 and then transmitted by the non-absorbing polarizer 106 and the path of the light emitted by the second light-emitting diode 126 and transmitted by the second non-absorbing polarizer 106, wherein the light-combining element 110 combines the light emitted by the first light-emitting diode 126 and then transmitted by the non-absorbing polarizer 106 and the light emitted by the second light-emitting diode 126 and transmitted by the second non-absorbing polarizer 106; wherein the microdisplay 104 receives the combined light from the light-combining element 110. Note figures 1 and 2 and paragraphs 0029-0041 of Weindorf et al. Weindorf et al. does not disclose a second non-absorbing polarizer coupled to the second light-emitting diode and transmitting light having a second polarization orientation that is orthogonal to

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the polarization orientation of the light transmitted by the non-absorbing polarizer, and reflecting light that does not have the second polarization orientation; that light-combining element 110 (which combines the light emitted by the first and second LEDs) is a polarizing beamsplitter.

However, Weber et al. discloses a highly efficient light-combining element which derives its efficiency from its ability, by combining two or more non-absorbing polarizers 54 coupled to light-emitting diodes c1 through cn-1, the non-absorbing polarizers 54 transmitting light having polarizations orientation that are orthogonal to each other with a polarizing beamsplitter 55, to combine light having a first polarization orientation and light having a second, orthogonal polarization orientation. Note figure 1 and paragraph 0015 of Weber et al. Therefore, it would have been obvious to a person having skill in the art to replace the light-combining element of Weindorf et al.'s backlight LCD with the polarizing beamsplitter such as taught by Weber et al. in order to increase the efficiency with which polarized light is delivered to a polarized microdisplay to thus provide a brighter display.

C. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over NIWA et al. (2002/0031153) in view of WEINDORF ET AL. (2002/0140880), as applied to claim 1 above, and further in view of WEBER ET AL. (2001/0036083).

Niwa et al. and Weindorf et al. suggest a backlight LCD with all the limitations of claim 1, from which claims 6 and 7 ultimately depend. See above. In addition, Weindorf et al. discloses a second light-emitting diode 126 (note that all of Weindorf et al.'s LEDs

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are labeled 126 in the figures) including an epitaxial structure comprising an active region sandwiched between a second n-type region and a second p-type region, that emits light when forward biased; a second randomizing element 130 coupled to the second light-emitting diode 126 and the second non-absorbing polarizer 106, the second randomizing element 130 positioned to receive light emitted from the second light-emitting diode 126 and the second non-absorbing polarizer 106, the second randomizing element 130 at least partially randomizes the polarization state of the light; and a light-combining element 110 disposed in the path of the light emitted by the first light-emitting diode 126 and then transmitted by the non-absorbing polarizer 106 and the path of the light emitted by the second light-emitting diode 126 and transmitted by the second non-absorbing polarizer 106, wherein the light-combining element 110 combines the light emitted by the first light-emitting diode 126 and then transmitted by the non-absorbing polarizer 106 and the light emitted by the second light-emitting diode 126 and transmitted by the second non-absorbing polarizer 106; wherein the microdisplay 104 receives the combined light from the light-combining element 110.

Note figures 1 and 2 and paragraphs 0029-0041 of Weindorf et al. Note figures 6A-C, 14, 15, and paragraphs 0113-0123 and 0172-0187 of Niwa et al. Niwa et al. and Weindorf et al. do not disclose a second non-absorbing polarizer coupled to the second light-emitting diode and transmitting light having a second polarization orientation that is orthogonal to the polarization orientation of the light transmitted by the non-absorbing polarizer, and reflecting light that does not have the second polarization orientation; that

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light-combining element 110 (which combines the light emitted by the first and second LEDs) is a polarizing beamsplitter.

However, Weber et al. discloses a highly efficient light-combining element which derives its efficiency from its ability, by combining two or more non-absorbing polarizers 54 coupled to light-emitting diodes c1 through cn-1, the non-absorbing polarizers 54 transmitting light having polarizations orientation that are orthogonal to each other with a polarizing beamsplitter 55, to combine light having a first polarization orientation and light having a second, orthogonal polarization orientation. Note figure 1 and paragraph 0015 of Weber et al. Therefore, it would have been obvious to a person having skill in the art to replace the light-combining element of Weindorf et al.'s backlight LCD with the polarizing beamsplitter such as taught by Weber et al. in order to increase the efficiency with which polarized light is delivered to a polarized microdisplay to thus provide a brighter display.

Allowable Subject Matter

10. Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

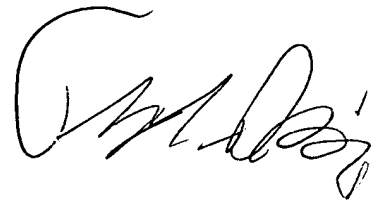
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Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Thomas L. Dickey
Patent Examiner
Art Unit 2826
12/05**